REMARKS

After entry of this Amendment, claims 1-2 and 4-16 will be all the claims pending in the application. Claim 1 has been amended to incorporate the features of claim 3. Claim 3 has been canceled.

No new matter has been added.

Entry of the above amendments is respectfully requested.

Preliminary Matters

Applicants thank the Examiner for acknowledging Applicants' preliminary amendment filed June 5, 2006, Applicants' claim for foreign priority under 35 U.S.C. § 119, Applicants' Information Disclosure Statement submitted June 5, 2006, and Applicants' drawings submitted June 5, 2006.

Claim Rejections

(I) On page 3 of the Office Action, claims 1-8 and 12-16 are rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by, or in the alternative, under 35 U.S.C. § 103(a) as allegedly being obvious over Hashiguchi et al. (U.S. 2002/0180088).

In response, and while not admitting that the rejection is appropriate, claim 1 has been amended to incorporate the features of claim 3. Applicants submit that amended claim 1 is patentably distinct from Hashiguchi et al. for the following reasons.

(A) Applicants submit that the present invention relates to an electroconductive resin composition, comprising: a multicomponent polymer-type resin binder (A) comprising a dispersed phase and a continuous phase, and having a number-average particle size of dispersed phase of 0.001-2μm, and an electroconductive material (B) in the form of powder and/or fiber; wherein the <u>number-average particle size of the dispersed phase in the component (A) is smaller</u>

than the number-average particle size or number-average fiber diameter of the component (B).

The electroconductive resin composition according to the present invention may easily be subjected to molding and therefore, is optimal as a composite material in a field (such as fuel cell separator) where the thickness precision is required. Further, the cured product thereof can reproduce the electroconductivity or heat conductivity of the carbonaceous material such as graphite substantially without a limit and can have very high performance (page 43, lines 28-36 of the present specification).

Particularly, in the electroconductive resin composition according to the present invention, the number average particle size of the dispersed phase in the component (A) is smaller than that of the component (B).

In the present invention having the above-mentioned relationship between the particle sizes in the components (A) and (B), the conductive materials are mutually contacted with each other, so as to provide a good contact state therebetween, whereby a good electroconductivity is attained.

Hashiguchi et al. does not teach or suggest an electroconductive resin composition comprising a multicomponent polymer-type resin binder (A) comprising a dispersed phase and a continuous phase, and an electroconductive material (B); wherein the number-average particle size of the dispersed phase in the component (A) is smaller than that of the component (B).

Hashiguchi et al. discloses a process for producing a separator for fuel cells, which comprises: mixing a carbonaceous powder and a binder to form a mixed raw material, heating the mixed raw material in a heating oven, and compression-molding the mixed raw material using a compression-molding machine to form a separator for fuel cells. The object of this reference is to provide a process for producing a separator for fuel cells, which is capable of

reducing the residence time in the compression molding machine and of efficiently producing a fuel cell separator, without impairing the quality and performances of the fuel cell separator (paragraph [0005] of this reference). The process of this reference is characterized in that a separator for fuel cells is efficiently mass-produced by heating and compression-molding a raw material mixture of a carbonaceous powder and a binder, while reducing the residence time in a compression-molding machine without impairing the quality or functions of the separator to be obtained. In this process for producing a fuel cell separator, the raw material mixture of a carbonaceous powder and a binder is heated in a heating oven (not compression-molding machine), subsequently introduced into a compression-molding machine, and then compression-molded therein (Abstract of this reference).

However, Hashiguchi et al. does not conceive of the "island-in-sea" type structure, as provided by the constitution of claim 1 of the subject application. That is, Hashiguchi et al. does not teach or suggest an electroconductive resin composition comprising a multicomponent polymer-type resin binder (A) comprising a dispersed phase and a continuous phase, and an electroconductive material (B); wherein the number-average particle size of the dispersed phase in the component (A) is smaller than that of the component (B).

Specifically, in the resin composition according to the present invention having a so-called "island-in-sea" type structure, a so-called "island phase" (i.e., dispersed phase) is independently dispersed in a larger amount of a so-called "sea phase" (i.e., continuous phase), and further the electroconductive material is dispersed in the "sea phase" (i.e., continuous phase).

In the present invention, the particle size of the electroconductive material is larger than the "island phase" (i.e., dispersed phase).

On the contrary, Hashiguchi et al. does not teach or suggest a resin composition having such an "island-in-sea" type structure. If Hashiguchi et al. were to disclose a resin composition having the " island-in-sea" type structure, Hashiguchi et al. <u>must</u> disclose the diameter of the "island phase" (i.e., dispersed phase). However, Hashiguchi et al. rather teaches that [0027] the particle diameter of the binder preferably may be <u>1.2 times</u> the particle diameter of the carbonaceous powder (paragraph [0027] of Hashiguchi). Accordingly, Hashiguchi et al. does not teach or suggest the presence of an "island phase," and Applicants submit that the resin composition described in Hashiguchi et al. does not have an "island-in-sea" type structure and thus, does not teach or suggest an electroconductive resin composition comprising a multicomponent polymer-type resin binder (A) comprising a dispersed phase and a continuous phase, and an electroconductive material (B); wherein the number-average <u>particle size</u> of the <u>dispersed phase in the component (A)</u> is <u>smaller than</u> that of the <u>component (B)</u>, as recited in amended claim 1.

Applicants further submit that claims 2-8 and 12-16 are patentable over Hashiguchi et al. by virtue of their dependency from amended claim 1.

(B) Additionally, Applicants submit that with respect to claims 12 and 15, the invention relates to an electroconductive molded product which has been obtained by molding the above-mentioned electroconductive resin composition according to claim 1 (with respect to claim 12); and a fuel cell separator, which has been obtained by using the molded product according to claim 12 (with respect to claim 15).

However, as described above, Hashiguchi et al. does not teach or suggest the above-mentioned electroconductive resin composition according to claim 1. Accordingly, Hashiguchi et al. does not teach or suggest the electroconductive molded product of the above-mentioned

electroconductive resin composition according to claim 1, or a fuel cell separator, which comprises such a molded product, of claims 12 and 15.

Withdrawal of the rejection is respectfully requested

(II) On page 6 of the Office Action, claims 9-11 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Hashiguchi et al. as applied to the above claims, and further in view of Noguchi et al. (U.S. 2003/0191228). Applicants submit that the claims are not obvious for the following reasons.

(A) Applicants submit that Noguchi et al. does not make up for the deficiencies of Hashiguchi et al. with respect to the feature that the number-average particle size of the dispersed phase in the component (A) is smaller than that of the component (B) of amended claim 1, as discussed above, and thus the combination of Hashiguchi et al. and Noguchi et al. does not render claims 9-11 obvious.

Specifically, Noguchi et al. discloses a conductive curable resin composition characterized by comprising (A) a curable resin composition comprising an elastomer with a Mooney viscosity (ML1+4 (100[deg.] C.)) of 25 or greater at 2-80 wt % based on the weight of the curable resin composition (A) and (B) a carbon material, with a weight ratio of component (A) to component (B) of 70-5:30-95.

However, Noguchi et al. does not conceive of the "island-in-sea" type structure, as provided by the constitution of claim 1 of the subject application. That is, for the same reasons as discussed above, Hashiguchi et al. and Noguchi et al. do teach or suggest an electroconductive resin composition comprising a multi-component polymer-type resin binder (A) comprising a dispersed phase and a continuous phase, and an electroconductive material (B); wherein the

number-average particle size of the dispersed phase in the component (A) is smaller than that of the component (B).

With respect to Noguchi et al., this reference uses a mixture comprising a thermoplastic elastomer (Al) and a thermosetting (curable) resin (radical reactive resin (A2)) (paragraph [0054] of Noguchi et al.). In general, thermoplastic elastomer (Al) has a very high viscosity at a heated state thereof, while the thermoplastic resin has a very low viscosity at a heated state thereof. Such a combination cannot form an "island-in-sea" type structure according to the present invention, because the difference in the viscosities of the thermoplastic elastomer (Al) and the thermosetting (curable) resin (A2) is excessively large. Accordingly, Noguchi does not conceive of the "island-in-sea" type structure, as provided by the constitution of claim 1 of the subject application.

(B) Further, the Examiner has stated that Hashiguchi et al. disclose the incorporation of a transition metal. However, Applicants submit that boron is a non-metal element and not a transition metal, and therefore, a *prima facie* case of obviousness has not been made because the cited references do not teach this feature of claims 9 and 11.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880.

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Respectfully submitted,

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